

Submission of Replacement Formal Drawings

Replacement formal drawings are submitted herewith for Figs. 1(a) and (b), 2(a) and (b), 3(a) and (b), and 4(a)-(g), in order to provide separate figure labels for each of the figures, in accordance with 37 C.F.R. 1.84. Approval and entry of these replacement drawing sheets are respectfully requested.

REMARKS

By this amendment, claims 1-11 have been cancelled, and claims 12-19 have been added. Thus, claim 12-19 are now active in the application. Reexamination and reconsideration of the application are respectfully requested.

The specification and abstract have been carefully reviewed and revised to correct grammatical and idiomatic errors in order to aid the Examiner in further consideration of the application. The amendments to the specification and abstract are incorporated in the attached substitute specification and abstract. No new matter has been added.

Attached hereto is a marked-up version of the changes made to the specification and Abstract by the current amendment. The attachment is captioned "**Version with markings to show changes made.**"

Also, replacement formal drawings are submitted herewith for Figs 1(a) and (b), 2(a) and (b), 3(a) and (b), and 4(a)-(g), in order to provide separate figure labels for each of the figures, in accordance with 37 C.F.R. 1.84. Approval and entry of these replacement drawing sheets are respectfully requested.

On pages 2 and 3 of the Office Action, claims 5, 6, 8 and 11 were rejected under 35 U.S.C. § 102(b) as being anticipated by Nagasaka (US 5,203,47); and claims 7,9 and 10 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Nagasaka in view of Kuroyanagi et al. (6,272,881). These rejections are believed moot in view of the cancellation of claims 5-11. Furthermore, these rejections are clearly inapplicable to new claims 12-19, for the following reasons.

With exemplary references to the drawing figures, claim 12 sets forth a tank 2, 3 for a heat exchange 1, the tank 2, 3 comprising: a perimeter portion 18 enclosing an inner space, and a partition portion 20 partitioning the inner space into first and second chambers 21, 22 elongated along a first direction (i.e. side-to-side direction in Figs. 2(a) and 2(b); wherein the perimeter portion 18 has a plurality of tube-insertion holes 17 formed therein, the tube-insertion holes 17 being spaced apart along the first direction (side-to-side direction in Figs 2(a) to 2(b)) and facing

in a second direction (upward direction in Fig 3(b)) so as to be arranged to receive elongated tubes elongated in the second direction (vertical direction in Fig 1(a)); wherein the partition portion 20 extends along the first direction (See Fig 5); wherein the partition portion 20 divides the inner space so that the first and second chambers 21, 22 are separated from each other along a third direction (i.e. side-to-side direction in Fig 3(b)) perpendicular to the second direction (i.e. vertical direction in Fig 3(b)); and wherein a communication passage 16 is formed as a through hole in the partition portion 20 connecting between the first and second chambers 21, 22 (See Figs. 4(b)-4(g), as well Fig. 6).

Thus, as illustrated in Fig 3(b), the chambers 21, 22 are separated from one another along the airflow direction (i.e. the “third direction”, and the tube-insertion holes 17 are spaced apart along the first direction (into and out of the paper in Fig 3(b)), and face in the second direction (vertical direction in Fig 3(b)). Claim 12 specifies that the third direction is perpendicular to the second direction.

The Nagasaka patent discloses in Figs 15 and 18 an extruded header tank 37, 41 having plural chambers (e.g. 34, 35 in Fig 15 and 34, 8, 12 in Fig 18), wherein the main chamber 34 is separated from the sub-chamber 35 by a partition portion having a communication passage 10a, 10b therein. However, the arrangement of the Nagasaka header tank is fundamentally different than that of the present invention. In particular, the main chamber 34 of Nagasaka is provided with the tube-insertion openings that face in the leftward direction in Fig 15 so that the heat exchanger tubes 2 can extend in the leftward direction, while the chambers 34 and 35 are separated from each other along the same direction, (i.e. the leftward direction in Fig. 5), and the communication passages 10a, 10b connects between these first and second chambers 34 and 35. Thus, in the Nagasaka patent, the tube-insertion opening face in the same direction in which the chambers 34 and 35 are separated from each other by the partition portion. It is noted that in Fig. 18, the partition portion between chambers 8 and 12 does not include a communication passage therethrough. In contrast to the Nagasaka arrangement, as noted above, the present claim 12 requires the partition portion to divide the inner space so that the first and second chambers are

separated from each other along a direction that is perpendicular to the direction in which the two-insertion openings face.

Thus, in view of the above clear distinctions between the present invention of claim 12 and the Nagasaka tank header, it is believed apparent that claim 12 is not anticipated by the Nagasaka patent.

The Examiner cited the Kuroyanagi et al. patent for disclosing “forming a multi-chambered header having a thickness of '0.6mm...’.” This disclosure of the Kuroyanagi et al. patent provides no teaching or suggestion that would have obviated the above-discussed shortcomings of the Nagasaka patent.

The differences between the Nagasaka and Kuroyanagi et al. patents and the present invention as recited in claim 12 are clearly such that a person of the ordinary skill in the art would not have been motivated to modify the Nagasaka arrangement or to make any combination of the references of record in such a manner as to result in or otherwise render obvious the present invention of claim 12. Therefore, it is respectfully submitted that claim 12, as well as claims 13-19 which depend therefrom, are clearly allowable over the prior art of record.


The Examiner’s attention is also directed to the dependent claims 13-19 which set forth additional features of the present invention and further define the invention over the prior art. For example, claim 13 specifies that the plurality of tube insertion holes 17 includes first tube-insertion holes (e.g. those on the left-hand side in Fig 3(b)) opening into the first chamber 21, and second tube-insertion holes (e.g. the right-hand holes in Fig 3(b)) opening into the second chamber 22. This feature of the present invention is also clearly not taught or suggested in the Nagasaka and Kuroyanagi et al. references.

In view of the foregoing amendments and remarks, it is respectfully submitted that the present application is clearly in condition for allowance. An early notice thereof is earnestly solicited.

If, after reviewing this Amendment, the Examiner feels there are any issues remaining which must be resolved before the application can be passed to issue, it is respectfully requested that the Examiner contact the undersigned by telephone in order to resolve such issues.

Respectfully submitted,

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April 25, 2006